September 1994

Clinical Center News

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Agreement accelerates work in cellular therapies

Cellular therapies are at the vanguard of medical research today. Human blood cells can now be modified to treat cancer, infections, and many inherited diseases. Examples include inserting genes into cells or enhancing a cell's immune response.

The Department of Transfusion Medicine (DTM) has nailed down a leading role in this booming research area by signing a Cooperative Research and Development Agreement (CRADA; see *CC factoids* on page 2) with Baxter Healthcare Corporation. Such an agreement enables NIH to collaborate with private industry on specific research projects, and spells out licensing and patent issues that can vex less formal associations.

Certain business, financial, and scientific information in any CRADA must remain confidential. However, the broad goals of the DTM agreement are to develop and improve procedures for collecting, modifying, growing, and preserving human cellular components, according to DTM Chief Dr. Harvey G. Klein. The crucible for such cutting-edge research will be a 3,000-square-foot Cell Processing Laboratory, to be built atop the existing DTM wing. Construction is slated to begin in six to nine months and will take a year or so. Although the lab is not yet built, studies are already under way in DTM labs, with Baxter staff on-site.

Since the groundbreaking gene therapy protocol of 1990, in which DTM played a crucial role, modified cells have come under increasing scrutiny by the Food and Drug Administration (FDA). "When you start removing cells, growing them, modifying them, and putting them back into a human being, you become, in essence, a biologics manufacturer," explains Dr. Klein. A biologic is

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It's official

12 West is now reopened after a nine-month, $737,000 renovation. Patient Dean Freeman (center) had ribbon-cutting honors during ceremonies last month. The unit's interior was refurbished top to bottom, and two state-of-the-art isolation rooms constructed. The renovation offers patients a more comfortable, home-like environment. Among those on hand were (front from left) Alisa Peinhardt, 12 West head nurse; Jean Jenkins, chief of the cancer and human genome nursing service; graduate nurse Katrina McKullar; and 12 West clinical staff nurses Linda Ludy, Helen Owens, Susan Orsega, and Kim Woodring. The renovation was a joint effort between the Clinical Center and NCI.

. . . Cell Processing Lab will be built atop DTM wing

Continued from page one

a treatment derived from a living organism, for example, a vaccine. Depending on how much the cells are modified, they could even be considered medical devices, he says. "You have to make sure you're manufacturing this biologic in a manner that is safe and appropriate for human use."

Dr. Klein believed that Baxter's involvement in complementary research pursuits made it a prudent choice for collaboration. Baxter, a leader in health-care products, systems, and services, has expertise in manufacturing biologics that meet federal standards. DTM has expertise in cellular therapy and access to clinical facilities and patients. Says Dr. Klein, "We hope that combining these areas of expertise will benefit NIH and Baxter and ultimately the general public," as cellular therapies make their way into mainstream medicine.

Biologics: treatments derived from living organisms.

Dr. Klein foresees that FDA will look to the research results for guidance as it formulates regulations on cellular therapies. "This is an uncharted area," he says. But Dr. Klein's team has navigated uncharted waters before. He is justifiably proud that DTM helped to develop techniques, such as growing cells in blood bags, that allowed gene therapy to be exported to centers worldwide.

DTM currently processes cells for a dozen protocols from four institutes. Dr. Klein expects this number to grow, which presents some challenges. CRADA studies will look at controlling the process of manipulating billions of cells according to the specifications of many different protocols. Automation, tracking, labeling, and equipment are all areas for research and development. "I think [this CRADA] is a very good thing for NIH. Without it, it's unlikely that the various intramural programs could proceed as rapidly."

—by Sue Kendall

cc factoids

Agreements pave avenues to collaboration

A Cooperative Research and Development Agreement (CRADA) is a mechanism by which NIH investigators can collaborate with colleagues from industry and academia to pursue common research goals. Each party contributes unique resources to the effort, such as expertise or hard-to-get research materials. Either party can initiate a CRADA.

Under the CRADA, the outside company is given the option to license inventions developed within the project's research scope. At present, NIH retains some control over pricing of the inventions to protect the taxpayers' investment. This provision is being re-evaluated to see if it helps or hinders NIH objectives, according to Dr. Jane Biddle, of NIAID's technology transfer branch, who coordinated the DTM-Baxter CRADA.

The Federal Technology Transfer Act of 1986 encourages interaction and technology transfer between federal government and industry through CRADAs. Says Dr. Biddle, "Collaboration with industry allows us to further the development of scientific and technological knowledge, and bring it to the public as a useful, marketable product." NIH presently has 206 CRADAs, six of which are Clinical Center-based. Usually written for one to four years, CRADAs can be extended.

Detractors argue that CRADAs put government in industry's back pocket. The agreement, however, states that, "CRADAs are not viewed by NIH as a general funding source or as a mechanism for sponsored research." DTM Chief Dr. Harvey G. Klein concurs. "There is an intellectual contribution from both sides; it's not simply money." He stresses that having a CRADA with one company does not preclude association with another company or use of its products.

Another criticism of CRADAs is that the outside collaborator can potentially exercise too much control over the research direction. "True, a CRADA's research plan spells out specific objectives, which some see as restrictions on research freedom," says Dr. Biddle. "However, if appropriate, the research plan can be amended to incorporate serendipitous [chance] findings that may or may not have commercial interest." Such specificity is precisely what keeps the collaborator from having undue influence, she says.

—by Sue Kendall

Clinical Center News

Editor: Sara Rand Byars

Clinical Center News, Building 10, Room 1C255, National Institutes of Health, Bethesda, Maryland 20892. (301) 496-2563. Fax: 402-2984. Published monthly by the Office of Clinical Center Communications, Colleen Henrichsen, chief, for CC employees. News, article ideas, calendar events, letters, and photographs are welcome. **Deadline** for submissions is the second Monday of each month.

Seminars, testing target cholesterol

Fall is back-to-school time, but CC employees don't have to return to the classroom to learn some important lessons. That's because it's National Cholesterol Education Month at NIH. To promote cholesterol awareness, the Occupational Medical Service (OMS) will sponsor a cholesterol screening program in cooperation with the R&W and NHLBI.

Keeping your heart and blood vessels healthy means learning what your blood cholesterol level is and doing something about it if it's high. OMS is making that easy by offering screening opportunities and presenting two noon lectures.

The cholesterol education seminars are on tap for noon-1 p.m. in the Visitor Information Center's Little Theater. Dr. Jeffrey Hoeg, NHLBI, will discuss "The ABC's of Cholesterol" on Sept. 13. Maureen Leser, CC Nutrition Department, will cover "Lower Your Fat Intake with the Help of the New Food Labels" on Sept. 29.

Cholesterol screening will be offered each Tuesday in September, 7:30-11:30 a.m., in room 6C306. The test, a full lipid profile, costs $11.50. It requires fasting for nine hours before the test. Only water is allowed. The screening will be offered in the clinic 8-11 a.m. every Tuesday throughout the rest of the year.

October classes offered

The education and training section, Office of Human Resources Management, will sponsor the following classes in October:

•**QTRC Hosts Program.** These seminars help develop skills in managing quality improvement efforts and enhance knowledge of the QT process. Oct. 5, 8:30-9:30 a.m., 2C116; Oct. 11, 3-4 p.m., 2C310; and Oct. 18, 12:30-1:30 p.m., 2C116.

•**Time-Management Techniques.** Participants will examine time use and discuss ways to improve time management. Oct. 6, 8:30 a.m.-4:30 p.m., 1N248.

•**Advance Directives.** What happens when you can't make your own medical decisions? A panel of experts will discuss options. Oct. 12, 2-3 p.m., Lipsett Amphitheater.

•**Coping with the Difficult Employee.** This innovative new class will help supervisors identify and clarify complex issues involved in handling difficult or troubled employees. Oct. 20, 10 a.m.-noon, 1N248.

Call 496-1618 for details on these and other classes.

Award winners

The Clinical Center received a special award from the Treasury Department for outstanding support during the 1994 U.S. Savings Bond Campaign. Accepting the award in recent Public Health Service ceremonies were (center from left) CC campaign coordinators John Slovikosky, financial resources officer, and Ann Papagjika, budget analyst. With them are Anthony Itteilag, PHS deputy assistant secretary for health (management operations), and Richard Sherbert, NINDS executive officer. NINDS coordinated the NIH drive this year. (PHS photo by Catherine M. Brown)

Research Festival set for Sept. 19-23

This year's NIH Research Festival is set for Sept. 19-23. The annual event features symposia, more than 50 workshops presented by intramural researchers, and poster sessions featuring intramural research. Posters will be displayed 1-4 p.m. on Sept. 19 under tents that will be set up in parking lot 10D, just outside the Department of Transfusion Medicine. Exhibitions by the Technical Sales Association will be there Sept. 22-23. Call the Visitor Information Center at 496-1776 for more information.

Crafters invited

NIH crafters are invited to participate in the holiday bazaar to benefit the Friends of the Clinical Center. The event is set for Nov. 17. For details, call Kelly McManus at 496-6061 before Sept. 15.

Hispanic Heritage observance planned

NIH will recognize the achievements of Hispanic Americans during National Hispanic Heritage Month Sept. 15-Oct. 15. A scientific symposium, The Hispanic Legacy: A Portrait of Biomedical Research, is set for Sept. 29, 2-4 p.m., in Wilson Hall. The program is sponsored by the Office of Equal Opportunity's Hispanic employment program and the Hispanic American Advisory Committee. Call 496-9281 for details.

CC nurses pitch in to help flood victims in Georgia

Tropical Storm Alberta blustered up from the Gulf of Mexico in early July, stalled over southwest Georgia, and spewed torrential rains across the area.

The deluge turned the normally placid Flint River into a roiling bulldozer of muddy water. Flood waters eventually covered 10,000 square miles of land, tossed homes from foundations, killed at least 32 people, left 40,000 homeless, and destroyed millions of dollars in peach, peanut, corn, and soybean crops. The price tag for damages has topped $95 million.

President Clinton declared 31 Georgia counties a major disaster area on July 7. When the call for help went out nationally, six Clinical Center nurses were among those who answered.

Spending nearly two weeks providing front-line health care for displaced Georgians housed in community shelters were staff nurses Vien Vanderhoof, 9 East; Stacy Feldman, 13 West; Linda Ludy and Diana Miskinis, 12 West; Jackie Kerr, 2 West; and Kristen McCabe, 5 East.

Stacy Feldman (right), a nurse on 13 West, talks with a shelter resident. Six CC nurses participated in the relief efforts.

Vien Vanderhoof (at left in rear) takes a break with some of the residents of a shelter in Georgia. Clinical Center nurses helped in relief efforts there in July. Vanderhoof is a nurse on 9 East.

"The state of Georgia needed help," explains Bill Magers, emergency planning coordinator in the emergency management branch, NIH Division of Safety. Requests for assistance come through that office from the PHS Office of Emergency Preparedness. The Federal Emergency Management Agency (FEMA) manages the federal response plan once a disaster is declared, and the PHS Office of Emergency Preparedness responds to FEMA requests for health and medical help.

Magers worked with the CC Nursing Department to identify volunteers.

"Clinical Center nurses are generous in the support they volunteer when the call for help goes out," says Kathy McKeon, CC associate director for nursing. "We're proud of that spirit and dedication, and of the support co-workers here at the Clinical Center provide. That support is essential and appreciated."

Most of the volunteers were in the air heading south on July 21.

"My head nurse got the call around 4:30 one afternoon," says Kerr, "and I was at the airport by noon the next day."

"I had no idea what to expect," adds Feldman, "no clue. We were told to bring jeans, boots. I didn't see any high water, the flood was pretty much over, but I did see the destruction."

The devastation was, according to Vanderhoof, "terrible. Sinkholes swallowed houses. Nearly 400 coffins had been washed away from cemeteries."

The group's ultimate destination was Albany, Georgia, where 12 shelters set up in schools still housed thousands of residents who had lost their homes when the river's waters crested more than 20 feet above flood stage.

"We worked 12-hour shifts, eight to eight, with two nurses on each shift," Kerr explained. That was the schedule for most of the CC volunteers. "There were about 100 people in the gym on cots. If one person had a cough, the flu, or a sore throat, it spread through the whole place."

"With kids," she said with a laugh, "the main thing was getting them to keep their shoes on." Bumps, scrapes, and cuts to bare feet were common complaints.

The nurses saw many infections, adds Feldman. "We gave lots of tetanus shots." They cared for patients with chronic illnesses such as diabetes and hypertension.

"Many had lost their medications in the floods," Vanderhoof says, "and needed help replacing them. We saw a lot of depression. We'd talk to them and make referrals to social workers and mental health workers. We really worked as patient advocates."

The shelters quickly became self-contained communities. "People had all their belongings in trash bags," says McCabe. "We felt welcomed. It was such a stressful time for the residents. Nurses were there to take care of minor physical problems, things that the residents wouldn't have time to deal with otherwise. We did a lot of talking with the families. Played with the children."

It was very much a collaborative effort, McCabe says. "We were all nurses doing what needed to be done to make sure things ran as smoothly as possible for the residents."

"The National Guard helped with security and moving debris, and there were about 50 Veterans Administration nurses," Vanderhoof adds. "We worked with many national and local agencies and volunteer physicians. We consulted with each other and worked as a team to do the best for the people."

That teamwork was gratifying. "We bonded together and worked together," says Feldman. "I believe we made a big difference. And I enjoyed every day."

The hardest part of the mission, McCabe admits, was trying to understand what the flooded-out residents were going through. "We tried to empathize. Sympathy and pity weren't what they wanted."

"My attitude was that I'd do whatever it took to help," says Kerr. "I liked that—not knowing where I'd be needed. The challenge to see if I'd be ready for whatever came my way."

"I'd go back in a minute," says McCabe. "It was a great experience and we met wonderful people."

—by Sara Rand Byars

Staff nurse tapped for special mission to Goma, Zaire

Monique Petrofsky, 13 East staff nurse, has been tapped for a six-week detail to Goma, Zaire.

She will be part of a 14-member Commissioned Corps team assembled by Rear Adm. Julia Plotnick, PHS chief nurse. The 13 nurses and one pediatric nutritionist will be detailed under the auspices of the United Nations Children's Fund, the international relief agency known as UNICEF. At press time, the team was expected to leave for Zaire Sept. 5.

More than a million refugees from civil-war-torn Rwanda have poured over the borders into Goma in recent weeks. Many of those refugees are children separated from their parents and on their own.

The PHS team will help relief workers care for these children in centers already set up in Goma. "Our team will help UNICEF get the centers organized and running efficiently making sure the childrens' needs are met," says Gale White, acting special assistant to the chief nurse officer. Local workers will continue operations once the PHS team leaves.

"My first reaction was 'yes, I'll do it," says Petrofsky, a lieutenant commander in the Commissioned Corps. "My second reaction was that I seriously needed to think about it. I realize this will be a real tough assignment."

The decision only took only a few hours. Petrofsky's background in maternal and child health and the fact that's she's bilingual made her an ideal candidate for the assignment.

"My parents are French Canadian, so I speak French and Zaire is a French-speaking country," she points out. "Maternal and child health are my loves professionally, and I like working with other cultures."

An aunt who spent 35 years in Africa as a missionary put Petrofsky in touch with a Catholic missionary just back from Zaire. "She really knows the place and the people and helped me understand what to expect," she says.

Another factor in her decision to participate was the fact that Rear Adm. Plotnick organized the effort. "I admire her. She's been involved in other similar efforts, and is truly a mentor for many nurses."

The delegation will arrive in Goma just as the rainy season begins. "We'll be in the mountains, cool at night and hot during the day."

The team will be traveling light, taking cool, comfortable clothes. "I've had to put a lot of thought into what I'll take in terms of clothes and supplies. We don't yet know what type of accommodations to expect."

Petrofsky goes knowing her family back home is in good hands. "My husband is very supportive. He'll take care of our three kids."

"I know it will be the hardest work I've ever done," Petrofsky admits. But she's not apprehensive, even after spending two days getting inoculations for everything from polio to yellow fever.

That's because her plan is simple: "I'll go in. Do the best I can. And hope it helps."

—by Sara Rand Byars

CC lecture series spotlights medical topics

Lectures on schizophrenia, hepatitis, and ulcers kick off this year's Medicine for the Public lecture series sponsored by the Clinical Center.

The lectures, which are free and open to the public, are presented at 7 p.m. on Tuesdays in Masur Auditorium. Now in its 18th year, the series features physicians and scientists working in the frontiers of medical research at NIH. The lectures, complemented by lively graphics, help people understand the latest developments in medicine.

Dr. David Pickar, chief of the experimental therapeutics branch, NIMH, opens the series with "Schizophrenia: Out of the Shadows," on Sept. 27. New drug therapies are yielding encouraging results in the treatment of this serious, debilitating disease, and innovative imaging techniques are helping investigators learn more about its causes and effects.

Dr. Harvey Alter, chief of the immunology section, Department of Transfusion Medicine, will discuss "The Rise and Fall of Posttransfusion Hepatitis" on Oct. 4. Hepatitis is caused by several related viruses that infect and inflame the liver. Symptoms can include severe fatigue, jaundice, and appetite loss. In extreme cases, infection can, over time, lead to cirrhosis or liver cell cancer. Dr. Alter will explain how NIH research has contributed to the virtual elimination of blood-transmitted viral hepatitis and vastly increased the safety of our blood supply.

One in 10 Americans will be diagnosed with peptic ulcer disease during his or her lifetime. On Oct. 11, Dr. Frank Hamilton will present "Ulcers: Diagnosis and Treatment." Dr. Hamilton, director of the gastrointestinal disease program, NIDDK, will explain peptic ulcer disease, how it affects the body, and what factors influence ulcers.

Shingles, also called zoster, is an intensely painful rash of blisters caused by a reawakening of the chickenpox virus. Advancing age and immune system impairment raise one's risk for developing this painful disease. Dr. Stephen Straus, chief of the laboratory of clinical investigations, NIAID, will look at the disease's causes and recent advances during his Oct. 18 lecture, "Shingles: Another Pox on Us."

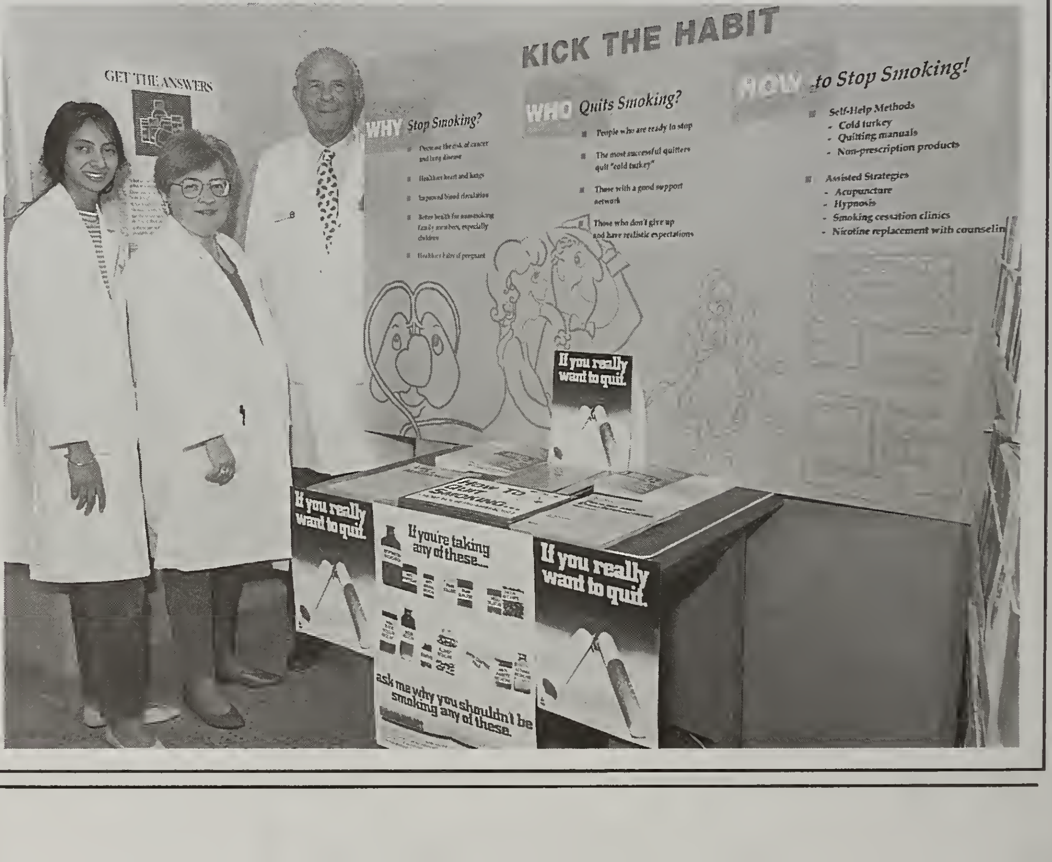
Viruses cause many diseases ranging from childhood ailments like measles, to flu, some cancers, AIDS, and the common cold. Some of these illnesses are easily treated or controlled and others are extremely dangerous. Scientists are also finding ways to use viruses to cure disease through procedures such as gene therapy. Dr. Philip Murphy, laboratory of host diseases, NIAID, will explain further in his Oct. 25 lecture, "Viruses: The Good, the Bad, and the Ugly."

Dr. Francis S. Collins, director of the National Center for Human Genome Research, and his colleagues helped develop positional cloning, a technique that identifies specific genes that cause disease. A 15-year effort is now underway at NIH to identify all 100,000 genes in the human genome, our DNA blueprint. In his Nov. 1 lecture, "Reading Our Own Blueprint: The Human Genome Project," Dr. Collins will review how to identify and map genes that cause inherited disease. He will also discuss the possibilities for curing or preventing some 4,000 inherited disorders as the genes are found.

For details, call Clinical Center Communications at 496-2563

Want to stop smoking?

CC Pharmacy staff have assembled an informative display and free packets chock-full of tips to help smokers kick the habit. Nicotine gum, patches, hypnosis, and acupuncture are just a few of the techniques covered. The exhibit will be in the 7th floor Cardiology Clinic during September before returning to the pharmacy, its permanent home. The brainchild of former pharmacy resident Dr. L. Rose Macklin, (not pictured), the exhibit will be implemented by Dr. Katie Singh, pharmacy resident (left). Pharmacist Eddie O. Wolfe (right) is in charge of the packets. Jane T. Healy, cardiology nurse coordinator in the 7th floor clinic, helped coordinate the Cardiology Clinic display. Direct questions to Dr. Singh at 402-4295.


KICK THE HABIT
GET THE ANSWERS
WHY Stop Smoking?
Healthier heart and lungs
Improved blood circulation
WHO Quits Smoking?
People who are ready to stop
The most successful quitters quit "cold turkey"
Those with a good support network
Those who don't give up and have realistic expectations
NOW to Stop Smoking!
Self-Help Methods
- Cold turkey
- Quitting manuals
- Non-prescription products
Assisted Strategies
- Acupuncture
- Hypnosis
- Smoking cessation clinics
- Nicotine replacement with counselin
If you really want to quit.
If you're taking any of these...
If you really want to quit.
If you really want to quit.
ask me why you shouldn't be smoking any of these.

New CT scanner

The Department of Diagnostic Radiology has added a new, faster CT scanner to its inventory. Looking over the $1.3 million unit, installed last month, are Shirley Rollison and Don Collier, radiologic technologists. Each image takes about a second to capture.

New, faster CT scanner speeds studies

The CC's Department of Diagnostic Radiology has added a new CT scanner to its inventory. It's the CT HiSpeed Advantage manufactured by GE Medical Systems.

The $1.3 million unit's biggest advantage is its speed. Each image takes about a second to capture. "That's important for infants and for patients who can't hold their breath," explains Dr. Jean Herdt, chief of the CT section.

A series of images make up each CT—computed tomography—study. Patients have to remain motionless and hold their breath each time an image is recorded.

Older models require at least two seconds for each image. "Studies that used to take 15 to 20 minutes can now take only three or four," Dr. Herdt points out.

Earlier CT models depended on a series of cables to move the donut-shaped X-ray tube around the patient. The unit circled the patient once and stopped. The table on which the patient is positioned advanced and the process repeated until the required number of images were completed.

The new CT allows the X-ray tube to continuously circle the patient while the table automatically and smoothly advances through the tube.

As the tube circles and the patient advances, images are recorded in the same pattern as the spiral formed when peeling an apple. Images can then be sliced up electronically for studying any anatomical section.

There are other benefits for physicians. "We can now visually chase the contrast through the heart or kidney, for example. That means we can see things we haven't been able to see before," Dr. Herdt explains. "We can now much better demonstrate the dynamics of blood flow through an organ, for example."

Contrast is fluid injected into a vein to highlight certain areas in the body doctors need to view. With earlier models, the contrast moved through the blood system faster than CT images could be made.

CT scans offer images of internal anatomy in three-dimensional detail. In conventional X-rays, organs are superimposed on each other and there's no sense of depth.

The CT technology was first introduced in the early 1970s. "The supposition was that if X-rays could be captured axially and body parts visualized three dimensionally," Dr. Herdt explains, "the information would be invaluable in diagnostics."

It has become a standard diagnostic tool allowing physicians to see conditions ranging from minor bleeds deep in the brain to the spread of cancer.

—by Sara Rand Byars

Just checking

Consultant Al Fritz from The Accreditation Resource (right) interviews Tannia Cartledge, head nurse of the 3rd and 9th floor clinics, about employee training and education requirements during a practice for this fall's Joint Commission on the Accreditation of Healthcare Organizations survey. The practice survey, held last month, was designed to help employees and managers become more familiar with survey requirements. "The consultant was consistently impressed with the quality of Clinical Center staff and their dedication to our mission," says Dr. John Gallin, CC director. The accreditation survey is expected to take place in late October. Surveyors will look for evidence that CC activities are well-organized, effective, and well-documented. Hospital-wide issues of safety, credentialing, leadership, and performance improvement (quality improvement) will receive intense scrutiny. For details about the Joint Commission visit and preparation plans, call Laura Lee at 496-8025.

ROOM PATIENTS PRIMARY ASSOCIATE NURSE OF THE DAY PHYSICIANS
DAY HOSP

september

14 **Grand Rounds**
noon-1 p.m.
Lipsett Amphitheater
The Association of Major Depressive Disorders with Hypercortisolism, David Michaelson, M.D., FDA and NIMH guest researcher; *Treatment of Spinal Cord Arteriovenous Malformations,* Edward Oldfield, M.D., NINDS, and John Doppman, M.D., CC.

27 **Medicine for the Public**
7 p.m.
Masur Auditorium
Schizophrenia: Out of the Shadows, David Pickar, M.D., NIMH

28 **Clinical Staff Conference**
noon-1:30 p.m.
Lipsett Amphitheater
Diagnosis of Pulmonary Opportunistic Infections, James Shelhamer, M.D., CC, moderator

QT project focuses on what employees think about training

Do you have an opinion about training courses at the Clinical Center? The education and training section (ETS), Office of Human Resources Management, wants it.

You'll have a chance to share your views on proposed training topics and current offerings this month when ETS staff distribute a needs-assessment survey as part of a QT project designed to determine what classes CC employees want.

The survey will list possible new training areas, including balancing family and work, dealing with anger, grammar, and typing. Employees also will be asked to identify which training classes currently offered they'd consider attending.

"Our primary goal," explains ETS staffer Sandy Whalen, "is to continue to provide quality training courses to all CC employees. We plan to evaluate and revise our current offerings based on the results of our upcoming survey."

"The needs of CC employees have continued to evolve, especially over the last few years," points out Sandy Thorpe, ETS staff member and QT team leader. "There is a great deal of stress that employees must cope with on a daily basis, such as child-care and elder-care concerns, declining opportunities for career advancement due to hiring freezes and a shrinking job market, and, for some, on-going interpersonal conflicts with co-workers or supervisors."

The education and training section wants to offer more courses in areas that are relevant to the home and work needs of CC employees, Thorpe add.

Employees will be asked to respond to the survey anonymously. The survey questionnaire and a return envelope will be sent to all CC non-supervisory employees.

The education and training section staff, under the direction of Karen Pascal, includes Stacey Bauman, Madeleine Catravas, Thorpe, and Whalen.